

What is claimed is:

1. A bicalutamide, donepezil, anastrozole, nelfinavir, or tamsulosin salt made by reacting bicalutamide, donepezil, anastrozole, nelfinavir, or tamsulosin with an organic or inorganic acid in a crystallization solvent, wherein the form has an aqueous solubility of approximately 5 micrograms/mL to approximately 100 mg/mL.
2. The bicalutamide, donepezil, anastrozole, nelfinavir, or tamsulosin salt of claim 1, comprising an (R)-tamsulosin HCl salt that is crystallized in a crystallization solvent comprising methanol.
3. The bicalutamide, donepezil, anastrozole, nelfinavir, or tamsulosin salt of claim 1, comprising a nelfinavir HCl salt that is crystallized in a crystallization solvent comprising propylene glycol.
4. The bicalutamide, donepezil, anastrozole, nelfinavir, or tamsulosin salt of claim 1, comprising an anastrozole oxalate salt that is crystallized in a crystallization solvent comprising methanol.
5. The bicalutamide, donepezil, anastrozole, nelfinavir, or tamsulosin salt of claim 1, wherein the mole ratio of bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof to the salt forming component is about M:N, wherein M is an integer from 1 to 100 and N is an integer from 1 to 100.
6. The bicalutamide, donepezil, anastrozole, nelfinavir, or tamsulosin salt of claim 5, wherein M is an integer from 1 to 20 and N is an integer from 1 to 20.
7. The bicalutamide, donepezil, anastrozole, nelfinavir, or tamsulosin salt of claim 1, wherein the salt is crystalline.
8. An (R)-tamsulosin salt comprising (R)-tamsulosin HCl.
9. The (R)-tamsulosin salt of claim 8, wherein:

- (a) the salt exhibits crystal parameters that are approximately equal to the following:
Monoclinic, P2(1), $a = 7.5499(13) \text{ \AA}$, $b = 9.1496(15) \text{ \AA}$, $c = 31.755(5) \text{ \AA}$, $\beta = 93.158(3)^\circ$, $V = 2190.2(6) \text{ \AA}^3$, $Z = 4$; or
- (b) the salt is characterized by a melting point at about 228-230 degrees C.
10. The (R)-tamsulosin salt of claim 9, wherein the form is crystallized in a crystallization solvent comprising methanol.
11. A nelfinavir salt comprising nelfinavir HCl.
12. The nelfinavir salt of claim 11, wherein the salt exhibits crystal parameters that are approximately equal to the following: Orthorhombic, P212121, $a = 10.7998(11) \text{ \AA}$, $b = 10.9951(11) \text{ \AA}$, $c = 26.198(3) \text{ \AA}$, $\alpha = 90$ degrees, $\beta = 90$ degrees, $\gamma = 90$ degrees, $V = 3110.9(5) \text{ \AA}^3$, $Z = 4$.
13. The nelfinavir salt of claim 12, wherein the form is crystallized in a crystallization solvent comprising propylene glycol.
14. An anastrozole salt comprising anastrozole oxalate.
15. The anastrozole salt of claim 14, wherein:
- (a) the salt exhibits crystal parameters that are approximately equal to the following:
Monoclinic, Cc, $a = 5.6514(8) \text{ \AA}$, $b = 32.718(5) \text{ \AA}$, $c = 10.7384(17) \text{ \AA}$, $\alpha = 90$ degrees, $\beta = 101.652(4)$ degrees, $\gamma = 90$ degrees, $V = 1944.7(5) \text{ \AA}^3$, $Z = 4$; or
- (b) the salt is characterized by a melting point at about 164-166 degrees C.
16. The anastrozole salt of claim 15, wherein the form is crystallized in a crystallization solvent comprising methanol.
17. A bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin polymorph formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil,

anastrozole, nelfinavir, or tamsulosin in an appropriate solvent, wherein the polymorph has an aqueous solubility of at least about 100 micrograms/mL.

18. The bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin polymorph of claim 17, wherein the polymorph is formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin in a crystallization solvent comprising an organic or inorganic solvent.

19. The bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin polymorph of claim 17, wherein the polymorph is formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin in a crystallization solvent comprising an one or more alcohols.

20. The bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin polymorph of claim 17, wherein the polymorph is formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin in a crystallization solvent comprising methanol.

21. The bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin polymorph of claim 17, wherein the polymorph is formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin in a crystallization solvent comprising dimethyl sulfoxide.

22. The bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin polymorph of claim 17, wherein the polymorph is formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin in a crystallization solvent comprising ethanol.

23. The bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin polymorph of claim 17, wherein the polymorph is formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin in a crystallization solvent comprising chloroform.

24. The bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin polymorph of claim 17, wherein the polymorph is formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin in a crystallization solvent comprising ethylenediamine.
25. A donepezil polymorph, wherein:
- (a) the polymorph exhibits crystal parameters that are approximately equal to the following:
Monoclinic, $P2_1/c$; $a = 16.449(8) \text{ \AA}$, $b = 9.355(5) \text{ \AA}$, $c = 14.336(7) \text{ \AA}$; $\beta = 112.514(10)^\circ$; $V = 2037.9(18) \text{ \AA}^3$; $Z = 4$;
 - (b) the polymorph is characterized by a melting point at about 74-82 degrees C;
 - (c) the polymorph is a Form III polymorph;
 - (d) the polymorph exhibits crystal parameters that are approximately equal to the following:
Monoclinic, $P2_1/c$, $a = 17.518(2) \text{ \AA}$, $b = 10.2424(14) \text{ \AA}$, $c = 11.7020(15) \text{ \AA}$, $\beta = 103.598(3) \text{ degrees}$, $V = 2040.8(5) \text{ \AA}^3$, $Z = 4$;
 - (e) the polymorph is characterized by a melting point at about 76-85 degrees C; or
 - (f) the polymorph is a Form IV polymorph.
26. A bicalutamide polymorph, wherein:
- (a) the polymorph exhibits crystal parameters that are approximately equal to the following:
Triclinic, $P-1$; $a = 7.6159(13) \text{ \AA}$, $b = 11.0193(18) \text{ \AA}$, $c = 11.2056(19) \text{ \AA}$; $\alpha = 87.301(3)^\circ$, $\beta = 77.091(3)^\circ$, $\gamma = 78.485(3)^\circ$; $V = 898.2(3) \text{ \AA}^3$; $Z = 2$; or
 - (b) the polymorph is characterized by a melting point at about 191-192 degrees C.
27. An (R)-tamsulosin polymorph, wherein:
- (a) the polymorph exhibits crystal parameters that are approximately equal to the following:

Monoclinic, P2(1), $a = 9.4238(8) \text{ \AA}$, $b = 21.4492(18) \text{ \AA}$, $c = 10.4229(9) \text{ \AA}$, $\beta = 105.776(2)^\circ$, $V = 2027.5(3) \text{ \AA}^3$, $Z = 4$;

- (b) the polymorph is characterized by a melting point at about 120-122 degrees C;
- (c) the polymorph is a Form I polymorph;
- (d) the polymorph exhibits a crystal parameters that are approximately equal to the following:
Monoclinic, C2, $a = 20.490(4) \text{ \AA}$, $b = 13.028(2) \text{ \AA}$, $c = 15.664(3) \text{ \AA}$, $\beta = 103.846(3)^\circ$, $V = 4059.9(12) \text{ \AA}^3$, $Z = 8$;
- (e) the polymorph is characterized by a melting point at about 109-113 degrees C; or
- (f) the polymorph is a Form II polymorph.

28. A bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, or tamsulosin hydrate formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, or tamsulosin in an appropriate solvent, wherein the hydrate has an aqueous solubility of at least about 100 micrograms/mL.

29. The bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, or tamsulosin hydrate of claim 28, wherein the hydrate is formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, or tamsulosin in a crystallization solvent comprising an organic or inorganic solvent.

30. The bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, or tamsulosin hydrate of claim 28, wherein the hydrate is formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, or tamsulosin in a crystallization solvent comprising methanol.

31. The bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, or tamsulosin hydrate of claim 28, wherein the hydrate is formed by the crystallization of bicalutamide, 5-fluorouracil, donepezil, anastrozole,

nelfinavir, mirtazapine, lansoprazole, or tamsulosin in a crystallization solvent comprising ethanol.

32. A donepezil hydrate, wherein:

(a) the hydrate exhibits crystal parameters that are approximately equal to the following:

Triclinic, P-1, $a = 10.338(3) \text{ \AA}$, $b = 11.319(3) \text{ \AA}$, $c = 12.065(3) \text{ \AA}$, $\alpha = 104.335(5) \text{ degrees}$, $\beta = 99.214(5) \text{ degrees}$, $\gamma = 115.620(5) \text{ degrees}$, $V = 1174.2(6) \text{ \AA}^3$, $Z = 2$; or

(b) the hydrate is characterized by a melting point at about 86 degrees C.

33. The donepezil hydrate of claim 32, wherein the hydrate is a tetrahydrate.

34. An (R)-tamsulosin hydrate, wherein:

(a) the hydrate exhibits crystal parameters that are approximately equal to the following:

Monoclinic, C2, $a = 15.7563(17) \text{ \AA}$, $b = 11.8043(12) \text{ \AA}$, $c = 21.978(2) \text{ \AA}$, $\beta = 99.1016(2)^\circ$, $V = 4037.3(7) \text{ \AA}^3$, $Z = 8$; or

(b) the hydrate is characterized by a melting point at about 104-108 degrees C.

35. The (R)-tamsulosin hydrate of claim 34, wherein the hydrate is a hemihydrate.

36. A process for the preparation of a salt of bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof, which comprises:

(a) mixing bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof with a salt component containing: chloride, bromide, iodide, acetate, salicylate, benzenesulfonate, benzoate, bicarbonate, bitartrate, calcium edetate, camsylate, carbonate, citrate, edetate, edisylate, estolate, esylate, fumarate, gluceptate, gluconate, glutamate, glycollylarsanilate, hexylresorcinate, hydrabamine, hydroxynaphthoate, isethionate, lactate, lactobionate, malate, maleate, mandelate, mesylate, methylsulfate, muscate, napsylate, nitrate, oxalate, panthothenate, phosphate/diphosphate, polygalacturonate, salicylate, stearate, succinate,

sulfate, tannate, tartrate, teoclate, triethiodide, amino acids, pamoate, 1,1'-methylene-bis-(2-hydroxy-3-naphthoate, alkali metal or alkaline earth metals selected from the group consisting of calcium, magnesium, sodium, lithium, zinc, potassium, and iron; N-methylglucamine, TRIS (tris-hydroxymethyl aminomethane), or basic organic compounds comprising amines to form a mixture;

- (b) subjecting the mixture to conditions which salify the bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof whereby crystals of a bicalutamide, donepezil, anastrozole, nelfinavir, or tamsulosin salt are formed; and
- (c) optionally isolating the salt.

37. The process according to claim 36, wherein the bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof is mixed with the salt component in solution.

38. The process according to claim 37, wherein the mixture is subjected in step (b) to conditions to evaporate solvent.

39. The process according to claim 38, wherein step (b) further comprises heating and cooling the solution.

40. The process according to claim 36, wherein the bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof is mixed with the salt component in a solid phase.

41. The process according to claim 40, wherein the mixture is a solid mixture which is subjected in step (b) to heating to salify the bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof.

42. The process according to claim 41, wherein the mixture is ground prior to heating.

43. A process for modulating the solubility of bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof for use in a pharmaceutical composition, which process comprises:

- (a) mixing bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof with a salt component that contains: chloride, bromide, iodide, acetate, salicylate, benzenesulfonate, benzoate, bicarbonate, bitartrate, calcium edetate, camsylate, carbonate, citrate, edetate, edisylate, estolate, esylate, fumarate, gluceptate, gluconate, glutamate, glycolylarsanilate, hexylresorcinate, hydrabamine, hydroxynaphthoate, isethionate, lactate, lactobionate, malate, maleate, mandelate, mesylate, methylsulfate, muscate, napsylate, nitrate, oxalate, panthothenate, phosphate/diphosphate, polygalacturonate, salicylate, stearate, succinate, sulfate, tannate, tartrate, teoclate, triethiodide, amino acids, pamoate, 1,1'-methylene-bis-(2-hydroxy-3-naphthoate, alkali metal or alkaline earth metals selected from the group consisting of calcium, magnesium, sodium, lithium, zinc, potassium, and iron; N-methylglucamine, TRIS (tris-hydroxymethyl aminomethane), or basic organic compounds comprising amines to form a mixture; and
- (b) salifying bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof with the salt component so that the solubility of the bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof is modulated.

44. A process for modulating the dose response of bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof for use in a pharmaceutical composition, which process comprises:

- (a) mixing bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof with a salt component that contains: chloride, bromide, iodide, acetate, salicylate, benzenesulfonate, benzoate, bicarbonate, bitartrate, calcium edetate, camsylate, carbonate, citrate, edetate, edisylate, estolate, esylate, fumarate, gluceptate, gluconate, glutamate, glycolylarsanilate, hexylresorcinate, hydrabamine, hydroxynaphthoate, isethionate, lactate, lactobionate, malate, maleate, mandelate, mesylate, methylsulfate, muscate, napsylate, nitrate, oxalate,

panthothenate, phosphate/diphosphate, polygalacturonate, salicylate, stearate, succinate, sulfate, tannate, tartrate, teoclate, triethiodide, amino acids, pamoate, 1,1'-methylene-bis-(2-hydroxy-3-naphthoate, alkali metal or alkaline earth metals selected from the group consisting of calcium, magnesium, sodium, lithium, zinc, potassium, and iron; N-methylglucamine, TRIS (tris-hydroxymethyl aminomethane), or basic organic compounds comprising amines to form a mixture; and

- (b) salifying the mixture so that the dose response of the bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof is modulated.

45. A process for the preparation of a polymorph of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof which comprises:

- (a) mixing bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof with an appropriate solvent; and
- (b) crystallizing the polymorph of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof under conditions which lead to the formation of the polymorph.

46. A process for the preparation of a hydrate of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, tamsulosin, or a derivative thereof which comprises:

- (a) mixing bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, tamsulosin, or a derivative thereof with an appropriate solvent and water; and
- (b) crystallizing the hydrate of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, tamsulosin, or a derivative thereof under conditions which lead to the formation of the hydrate.

47. A pharmaceutical dosage form comprising a therapeutically effective amount of a bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, or tamsulosin salt, polymorph, or hydrate of any one of claims 1-35.

48. A pharmaceutical dosage form comprising a pharmaceutically acceptable carrier, diluent, or excipient and a therapeutically effective amount of a bicalutamide, donepezil, anastrozole, nelfinavir, or tamsulosin salt of any one of claims 1-16.

49. A pharmaceutical dosage form comprising a pharmaceutically acceptable carrier, diluent, or excipient and a therapeutically effective amount of a bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin polymorph of any one of claims 17-27.

50. A pharmaceutical dosage form comprising a pharmaceutically acceptable carrier, diluent, or excipient and a therapeutically effective amount of a bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, or tamsulosin hydrate of any one of claims 28-35.

51. A method for treating a subject with an illness selected from the group consisting of prostate cancer, benign prostate cancer, breast cancer, diabetes, HIV infection, duodenal ulcers, gastric ulcers, major depressive disorder, and Alzheimer's Disease, which comprises administering to the subject a therapeutically effective amount of a salt, a polymorph, or a hydrate of bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, tamsulosin, or a derivative thereof.

52. A process for modulating the solubility of bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof for use in a medicament, which process comprises:

- (a) mixing bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof with a salt component that contains: chloride, bromide, iodide, acetate, salicylate, benzenesulfonate, benzoate, bicarbonate, bitartrate, calcium edetate, camsylate, carbonate, citrate, edetate, edisylate, estolate, esylate, fumarate, gluceptate, gluconate, glutamate, glycollylarsanilate, hexylresorcinate, hydrabamine, hydroxynaphthoate, isethionate, lactate, lactobionate, malate, maleate, mandelate, mesylate, methylsulfate, muscate, napsylate, nitrate, oxalate, panthothenate, phosphate/diphosphate, polygalacturonate, salicylate, stearate, succinate, sulfate, tannate, tartrate, teoclate, triethiodide, amino

- acids, pamoate, 1,1'-methylene-bis-(2-hydroxy-3-naphthoate, alkali metal or alkaline earth metals selected from the group consisting of calcium, magnesium, sodium, lithium, zinc, potassium, and iron; N-methylglucamine, TRIS (tris-hydroxymethyl aminomethane), or basic organic compounds comprising amines to form a mixture; and
- (b) salifying bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof with the salt component so that the solubility of the bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof is modulated.

53. A process for modulating the dose response of bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof for use in a medicament, which process comprises:

- (a) mixing bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof with a salt component that contains: chloride, bromide, iodide, acetate, salicylate, benzenesulfonate, benzoate, bicarbonate, bitartrate, calcium edetate, camsylate, carbonate, citrate, edetate, edisylate, estolate, esylate, fumarate, gluceptate, gluconate, glutamate, glycolylarsanilate, hexylresorcinate, hydrabamine, hydroxynaphthoate, isethionate, lactate, lactobionate, malate, maleate, mandelate, mesylate, methylsulfate, muscate, napsylate, nitrate, oxalate, panthothenate, phosphate/diphosphate, polygalacturonate, salicylate, stearate, succinate, sulfate, tannate, tartrate, teoclate, triethiodide, amino acids, pamoate, 1,1'-methylene-bis-(2-hydroxy-3-naphthoate, alkali metal or alkaline earth metals selected from the group consisting of calcium, magnesium, sodium, lithium, zinc, potassium, and iron; N-methylglucamine, TRIS (tris-hydroxymethyl aminomethane), or basic organic compounds comprising amines to form a mixture; and
- (b) salifying the mixture so that the dose response of the bicalutamide, donepezil, anastrozole, nelfinavir, tamsulosin, or a derivative thereof is modulated.

54. A medicament comprising a therapeutically effective amount of a bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, or tamsulosin salt, polymorph, or hydrate of any one of claims 1-35.

55. A medicament comprising a pharmaceutically acceptable carrier, diluent, or excipient and a therapeutically effective amount of a bicalutamide, donepezil, anastrozole, nelfinavir, or tamsulosin salt of any one of claims 1-16.

56. A medicament comprising a pharmaceutically acceptable carrier, diluent, or excipient and a therapeutically effective amount of a bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, or tamsulosin polymorph of any one of claims 17-27.

57. A medicament comprising a pharmaceutically acceptable carrier, diluent, or excipient and a therapeutically effective amount of a bicalutamide, 5-fluorouracil, donepezil, anastrozole, nelfinavir, mirtazapine, lansoprazole, or tamsulosin hydrate of any one of claims 28-35.

58. A 5-fluorouracil polymorph, wherein:

- (a) the polymorph is characterized by a melting point at about 282.5 degrees C; or
- (b) the polymorph is characterized by a powder X-ray diffraction pattern comprising peaks expressed in terms of 2-theta angles, wherein:
 - (i) said X-ray diffraction pattern comprises peaks at 11.70, 18.47, and 22.27 degrees;
 - (ii) said X-ray diffraction pattern comprises peaks at 11.77, 28.03, and 28.67 degrees;
 - (iii) said X-ray diffraction pattern comprises peaks at 18.47, 25.97, and 30.49 degrees;
 - (iv) said X-ray diffraction pattern comprises peaks at 11.77 and 18.47 degrees;
 - (v) said X-ray diffraction pattern comprises peaks at 28.03 and 28.67 degrees;
 - (vi) said X-ray diffraction pattern comprises peaks at 22.27 and 25.97 degrees;

- (vii) said X-ray diffraction pattern comprises a peak at 11.77 degrees;
- (viii) said X-ray diffraction pattern comprises a peak at 18.47 degrees;
- (ix) said X-ray diffraction pattern comprises a peak at 22.27 degrees;
- (x) said X-ray diffraction pattern comprises peaks at 11.77, 18.47, 22.27, 25.97 and 30.49 degrees; or
- (xi) said X-ray diffraction pattern comprises peaks at 11.77, 18.47, 28.03, 28.67, 30.49, and 35.17 degrees.

59. A celecoxib sodium hydrate, wherein the hydrate is characterized by a powder X-ray diffraction pattern comprising peaks expressed in terms of 2-theta angles, wherein:

- (a) said X-ray diffraction pattern comprises peaks at 3.05, 8.91, and 10.77 degrees;
- (b) said X-ray diffraction pattern comprises peaks at 3.59, 13.91, and 17.15 degrees;
- (c) said X-ray diffraction pattern comprises peaks at 19.91, 21.69, and 22.51 degrees;
- (d) said X-ray diffraction pattern comprises peaks at 3.05 and 8.91 degrees;
- (e) said X-ray diffraction pattern comprises peaks at 10.77 and 19.91 degrees;
- (f) said X-ray diffraction pattern comprises peaks at 17.15 and 22.51 degrees;
- (g) said X-ray diffraction pattern comprises a peak at 3.05 degrees;
- (h) said X-ray diffraction pattern comprises a peak at 8.91 degrees;
- (i) said X-ray diffraction pattern comprises a peak at 10.77 degrees;
- (j) said X-ray diffraction pattern comprises peaks at 3.05, 8.91, 13.91, 18.33, 20.57, and 21.69 degrees; or
- (k) said X-ray diffraction pattern comprises peaks at 3.59, 9.59, 17.50, 19.91, 22.51, 25.75, and 31.69 degrees.

60. A fluconazole benzene solvate, wherein:

- (a) the solvate exhibits crystal parameters that are approximately equal to the following:

Orthorhombic, Pba2, $a = 12.9209(10) \text{ \AA}$, $b = 38.512(3) \text{ \AA}$, $c = 5.9759(4) \text{ \AA}$, $\alpha = 90$ degrees, $\beta = 90$ degrees, $\gamma = 90$ degrees, $V = 2973.6(4) \text{ \AA}^3$, $Z = 8$; or

(b) the solvate exhibits an infrared spectrum which comprises peaks expressed in terms of cm^{-1} , wherein:

- (i) said infrared spectrum comprises peaks at 1710, 1269, and 1133 cm^{-1} ;
- (ii) said infrared spectrum comprises peaks at 1614, 1412, 1269, and 960 cm^{-1} ;
- (iii) said infrared spectrum comprises peaks at 1710, 1614, 1412, 1269, 960, and 853 cm^{-1} ; or
- (iv) said infrared spectrum comprises peaks at 1412, 960, and 853 cm^{-1} .

a.

61. A mirtazapine hydrate, wherein the hydrate exhibits crystal parameters that are approximately equal to the following:

Monoclinic, P2(1)/c, $a = 9.783(3) \text{ \AA}$, $b = 17.267(5) \text{ \AA}$, $c = 8.886(3) \text{ \AA}$, $\alpha = 90$ degrees, $\beta = 106.340(7)$ degrees, $\gamma = 90$ degrees, $V = 1440.4(8) \text{ \AA}^3$, $Z = 4$.

62. A lansoprazole:isopropanol:water complex, wherein:

(a) the complex exhibits crystal parameters that are approximately equal to the following:

Orthorhombic, Pba2, $a = 12.9209(10) \text{ \AA}$, $b = 38.512(3) \text{ \AA}$, $c = 5.9759(4) \text{ \AA}$, $\alpha = 90$ degrees, $\beta = 90$ degrees, $\gamma = 90$ degrees, $V = 2973.6(4) \text{ \AA}^3$, $Z = 8$; or

(b) the complex exhibits an infrared spectrum which comprises peaks expressed in terms of cm^{-1} , wherein:

- (i) said infrared spectrum comprises peaks at 1698, 1582, and 1166 cm^{-1} ;
 - (ii) said infrared spectrum comprises peaks at 1259, 1166, 1107, 1019, and 744 cm^{-1} ;
 - (iii) said infrared spectrum comprises peaks at 1582, 1440, 1299, 1107, 951, and 651 cm^{-1} ; or
- said infrared spectrum comprises peaks at 1259, 979, 802, and 744 cm^{-1} .